



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,391	01/22/2004	Tian Bu	Bu 1-2-28;67108-363PUS1	4485
46368 7590 04/24/2009 CARLSON, GASKEY & OLDS, P.C./Alcatel-Lucent 400 W MAPLE RD SUITE 350 BIRMINGHAM, MI 48009			EXAMINER GOLD, AVI M	
			ART UNIT 2457	PAPER NUMBER
			MAIL DATE 04/24/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/762,391	Applicant(s) BU ET AL.	
	Examiner AVI GOLD	Art Unit 2457	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is responsive to the amendment filed January 7, 2009. Claim 22 was amended. Claims 1-27 are pending.

Response to Amendment

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4-22, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan et al., U.S. Patent No. 6,192,054, further in view of Osterman, U.S. Patent Application Publication No. 2005/0108331.

Chan teaches the invention substantially as claimed including an acceleration of data network traffic between two nodes through the elimination of node latency by bypassing nodes which are not participating in communication (see abstract).

As to claim 1, Chan teaches an overlay network for maintaining traffic flow between a client and a server during a denial of service attack, comprising: a set of overlay nodes, coupled between the client and the server, wherein each overlay node comprises:

a ranking module configured to rank the overlay nodes based on a performance metric, wherein an overlay node with a higher-ranking indicates that the overlay node has better performance for transferring traffic to the server than overlay nodes with lower-rankings (col. 1, line 57 – col. 2, line 14, Chan discloses ranking of nodes on a network based on performance); and

a probing module configured to probe a portion of the overlay nodes during probing intervals (col. 4, lines 10-29, col. 13, lines 6-32, Chan discloses probing nodes).

Chan does not explicitly teach probing higher-ranking nodes more frequently than nodes with lower-rankings.

However, Osterman teaches architecture that employs unicast and multicast messaging to detect network devices (see abstract). Osterman teaches the use of more frequent statusing of higher ranked nodes (paragraph 79).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Chan in view of Osterman to probe higher-ranking nodes more frequently than nodes with lower-rankings. One would be motivated to do so because it will receive more up to date information on nodes that are better performing.

Regarding claim 2, Chan teaches the overlay network as recited in claim 1, wherein each overlay node further comprises a path selection module, configured to dynamically select an overlay node with a highest-rankings to be included as part of a pathway for transferring traffic to the server (col. 13, lines 6-32, Chan discloses the highest ranking node dynamically included in the network data path).

Regarding claim 4, Chan teaches the overlay network as recited in claim 1, further comprising one or more target nodes, configured to transfer the traffic from one or more of the overlay nodes directly to the server, the one or more target nodes having exclusive knowledge of an identity for the server (col. 7, lines 38-67, Chan discloses nodes sending data to a server).

Regarding claim 5, Chan teaches the overlay network as recited in claim 1, wherein each overlay node is virtually connected to each other (col. 1, lines 51-56, Chan discloses all the nodes connected to one another).

Regarding claim 6, Chan teaches the overlay network as recited in claim 1, wherein the performance metric includes at least one of: available bandwidth, latency, loss rate, and jitter; and wherein an overlay node with a higher-ranking indicates that the overlay node has better performance for transferring traffic to the server than overlay nodes with lower-rankings, the better performance including at least one of: more available bandwidth, less jitter, lower latency, and less packet loss (col. 1, lines 8-14, col. 1, line 51 – col. 2, line 14, Chan discloses the higher ranking nodes having lower latency).

Regarding claim 7, Chan teaches the overlay network as recited in claim 1, wherein the ranking module is further configured to determine whether the portion of overlay nodes with higher-rankings continue to have better performance for transferring traffic to the server than one or more of the overlay nodes with lower-rankings after a probing interval (col. 13-15).

Regarding claim 8, Chan teaches the overlay network as recited in claim 1, wherein the ranking module is configured to demote the rankings of the portion of overlay nodes with higher-rankings to lower-rankings if the portion of overlay nodes with higher-rankings have worse performance for transferring traffic to the server than one or more of the overlay nodes with lower-rankings after a probing interval (col. 13-15).

Regarding claim 9, Chan teaches the overlay network as recited in claim 1, wherein the traffic is data (col. 1, lines 8-14).

Regarding claim 17, Chan teaches the method as recited in claim 10, further comprising determining whether the portion of overlay nodes with higher-rankings continue to have better performance for transferring traffic to a target than one or more of the overlay nodes with lower-rankings after a probing interval; and promoting the rankings of one or more of the overlay nodes with lower-rankings to higher-rankings, if the portion of overlay nodes with higher-rankings have worse performance for

transferring traffic to a target than one or more of the overlay nodes with lower-rankings (col. 13-15).

Claims 10-16, 18-22, and 27 do not teach or define any new limitations above claims 1, 2, 4-9, and 17 and therefore are rejected for similar reasons.

3. Claims 3 and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan and Osterman further in view of Corrigan et al., U.S. Patent Publication No. 2004/0148357.

Chan teaches the invention substantially as claimed including an acceleration of data network traffic between two nodes through the elimination of node latency by bypassing nodes which are not participating in communication (see abstract). Osterman teaches the invention substantially as claimed including architecture that employs unicast and multicast messaging to detect network devices (see abstract).

As to claim 3, Chan and Osterman teach the method of claim 1.

Chan and Osterman do not explicitly teach an access node, configured to authenticate traffic directed to the server from the client, and forward authenticated traffic to one or more of the overlay nodes.

However, Corrigan teaches a messaging gateway for use by mobile networks (see abstract). Corrigan teaches the use of validation nodes (paragraph 51).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Chan and Osterman in view of Corrigan to use an access node,

configured to authenticate traffic directed to the server from the client, and forward authenticated traffic to one or more of the overlay nodes. One would be motivated to do so because it guarantees confidentiality and integrity of all traffic.

Regarding claim 23, Chan and Osterman teach an overlay network to mitigate a denial of service attack, comprising: target nodes configured to transfer the traffic previously authenticated by the access nodes to the server; and overlay nodes, coupled between the access nodes and the target nodes, configured to route the traffic from the access nodes to the target nodes by selecting a best end-to-end path between the client and the server based in accordance with at least one performance metric (col. 1, line 57 – col. 2, line 14, col. 4, lines 10-29, col. 13-15).

Chan and Osterman do not explicitly teach access nodes configured to authenticate traffic directed to the server from the client.

However, Corrigan teaches the use of validation nodes (paragraph 51).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Chan and Osterman in view of Corrigan to use access nodes configured to authenticate traffic directed to the server from the client. One would be motivated to do so because it guarantees confidentiality and integrity of all traffic.

Regarding claim 24, Chan and Osterman teach the overlay network as recited in claim 23, wherein each overlay node is configured to dynamically select, a best target node for accessing the server and a best path to reach that target node (col. 13-15).

Regarding claim 25, Chan and Osterman teach the overlay network as recited in claim 24, wherein the best path is selected via a best next hop measured in terms of the at least one performance metric (col. 13-15).

Regarding claim 26, Chan and Osterman teach the overlay network as recited in claim 23, wherein each overlay node comprises: a ranking module configured to rank the overlay nodes based on the performance metric, wherein an overlay node with a higher-ranking indicates that the overlay node has better performance for transferring traffic to one of the target nodes than overlay nodes with lower-rankings; and a probing module configured to probe a portion of the overlay nodes with higher-rankings more frequently than overlay nodes with lower-rankings during probing intervals (col. 1, line 57 – col. 2, line 14, col. 4, lines 10-29, col. 13-15).

Response to Arguments

4. Applicant's arguments filed January 7, 2009 have been fully considered but they are not persuasive.

5. In response to applicant's argument that it is impossible to modify the Chan reference so that it can probe higher ranking nodes more frequently than other nodes, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed

Art Unit: 2457

invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

6. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the knowledge is generally available to one of ordinary skill in the art, as one would be motivated to combine the references because the probing module will receive more up to date information on nodes that are better performing.

7. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat. No. 5,539,659 to McKee et al., because it discloses ranking of nodes.

U.S. Pat. No. 5,802,503 to Sansone, because it discloses nodes that are ranked and weighted.

U.S. Pat. Publication No. 2002/0002686 to Vange et al., because it discloses a method and system for overcoming denial of service attacks.

U.S. Pat. No. 7,185,077 to O'Toole et al., because it discloses performance metrics of a network and an overlay network of nodes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AVI GOLD whose telephone number is (571)272-4002. The examiner can normally be reached on M-F 8:00-5:30 (1st Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 571-272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. G./
Examiner, Art Unit 2457

/Salad Abdullahi/
Primary Examiner, Art Unit 2457